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Greenbugs on Small Grain Including Control of English Grain Aphid

Cooperative Extension South Dakota State University

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greenbugs on small grain

including control of English Grain Aphid

Cooperative Extension Service
South Dakota State University
U.S. Department of Agriculture

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Introduction

The two most important aphids occurring on small grain in South Dakota are the greenbug and the English grain aphid. The greenbug is the most important of these aphids because during the feeding process it injects a toxic saliva into the plants which causes discoloration and tissue destruction. Greenbugs feed on all small grains as well as some cultivated and wild grasses.

Greenbug

Description and Life Cycle

The greenbug is pale-green in color with adults attaining a length of approximately 1/16 inch. A dark green stripe is visible down the back of the adult greenbug. They may be either winged or wingless. The winged forms differ somewhat in appearance, being slightly larger with filmy wings about ¼ inch in expanse. The head is brownish yellow and there are blackish lobes on the back of the thorax of the winged forms.

The greenbug is not known to overwinter in South Dakota and apparently all infestations arise from winged females which are blown in each year. Each female greenbug gives birth to living young which are all females. These females start giving birth to living young in 7 to 18 days after birth, depending on temperature, and continue reproducing for up to 30 days. Each female may give birth to upwards of 80 young during her lifetime. The reproductive potential of greenbugs is so great that their numbers appear to triple over infested fields in a very short period.

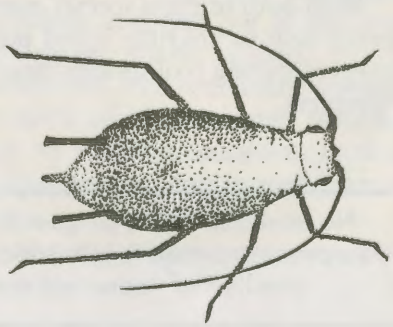
English Grain Aphid

Life Cycle and Description

The English grain aphid is pale-green in color with long black antennae. The cornicles (two projections extending backward from each side of the abdomen) are long and black. The wing expanse on winged adults is slightly over ¼ inch. The winged individuals are about the same size and color as the wingless ones.

This insect passes the winter mainly in fully or partly grown forms in the southern states. This insect is also capable of wintering in those areas in the egg stage. This insect feeds on all small grains as well as wild and cultivated grasses.

English Grain Aphid. Winged adults have a wing expanse of slightly more than a quarter of an inch.



Wheat or small grain fields infested with greenbugs usually show deadened areas. The dark area (photo at left) was treated with an insecticide for greenbug control, the lighter area was untreated.

A closer view (photo at right) shows infested plants which have turned yellow to dark brown.

Nature and extent of injury

Wheat or other small grain fields infested with greenbug usually show deadened areas. Infested plants turn yellow to dark brown as the infestation progresses. While feeding, the greenbug injects its toxin causing plant discoloration. As the infestation spreads the entire field may be killed out.

The economic threshold level of greenbug necessary before control measures should be started will vary with plant size, time of year, and other factors. Where early fall infestations on winter wheat develop during September and October, control measures are usually recommended when an average of 50 greenbugs are present per linear foot of row. When early spring infestations develop, insecticide treatments are recommended when an average of 80 greenbugs are present per linear foot of row. If the small grain is in the dough stage, treatments are not recommended or needed.

English grain aphids are usually only a problem on small grain during a late cool spring. Plants can tolerate larger numbers of English grain aphids than greenbugs.

As a general guideline, insecticide treatment is usually recommended for English grain aphid when numbers reach an average of over 50 per plant or plant head.

With both of these species, natural enemies in the spring help to hold the aphid populations in check, however, during cool springs these aphids can become a problem.

No endorsements of specific products or equipment named is intended, nor is criticism implied of those not mentioned.

Control of Greenbug on Winter Wheat

Table 1. Insecticides currently registered and recommended for planting time treatments for greenbug control on winter wheat.

	*Rate A.I. Acre	Restrictions
Thimet	1 lb	Do not feed or graze foliage for 45 days.
Di-Syston	1 lb	Do not feed or graze foliage within 30 days of treatment.

*Based on 7-inch drill spacings.
NOTE: Thimet is also registered for grasshopper and Hessian fly control. Di-Syston is also registered for Hessian fly control.

Only granular formulations of this insecticide are recommended at planting time as liquid formulations will not give the complete fall protection.

Use of a systemic treatment at planting time at recommended rates will eliminate any need for a foliar spray during the fall months.

Application of the granular insecticide can be made through a properly calibrated grass seeder attachment. *These insecticide formulations cannot be directly mixed with the seed in the drill box.* The grass seeder tubes should be dropped right into the seed tube so that the insecticide is placed right in the seed furrow with the wheat seed. For rates of application and calibration see Table 2.

Table 2. Calibration and rates of application for planting applications of granular insecticides on winter wheat.

Row Spacings	15% granules/acre	10% granules/acre
7 or 8 inch rows	6.5 lb.	10 lb.
10 inch rows	5.5 lb.	8 lb.
12 inch rows	4.5 lb.	7 lb.
14 inch rows	4.0 lb.	6 lb.

Calibrate the seeder or granular applicator by measuring off 330 feet and catching the granules from two insecticide tubes for this distance. When properly calibrated, there should be total of 1 ounce of 15% granules or 1.5 ounce of 10% granules delivered from the two tubes over the 330-foot distance. Use a small diameter plastic glass or tube as a measuring device. Pre-weigh 1 ounce and 1.5 ounce samples and mark these levels on the measuring tube before using it in the field.

Control of Both Species of Aphids with Insecticide Sprays

Where damaging infestations of aphids become established foliar applications of insecticides are recommended (Table 3).

The only insecticides recommended for ground sprayers are Cygon and malathion, because the range of toxicity is such that they can be applied safely by ground sprayers. Both Di-Syston and parathion are highly toxic in the liquid formulations. Ground spraying equipment should be calibrated to deliver 4 to 10 gallons of water. Most farm weed sprayers are satisfactory for applying insecticide sprays. During the fall when temperatures prevail below 60 degrees F. the use of parathion or malathion is not recommended. Cygon and Di-Syston will effectively control greenbug at the lower temperatures encountered.

Aerial Application

Where insecticide treatments are applied by air, any of the recommended treatments may be used. It is suggested that 1 to 2 gallons of water per acre be used as necessary for good coverage.

Table 3. Insecticides for aphid control on small grain.

Insecticide	Crop	Rate A.I./Acre	Restrictions
Cygon	Wheat	4 oz.	Do not apply within 14 days of grazing, or 60 days of grain harvest.
*Di-Syston	Wheat	8 oz.	Do not apply within 21 days of harvest. Post treated fields to prevent re-entry for 3 days.
*Parathion	Wheat Oats Barley	8 oz.	Do not harvest for 15 days. Post treated fields to prevent re-entry for 3 days.
Malathion	Wheat Barley Oats	1 lb.	Do not apply within 7 days of harvest.

***Di-Syston and parathion are recommended for commercial aerial applicators only.**

Precautions

Insecticides are poisonous; handle and store them with care. Be sure to read the label and follow the directions. Keep children and pets out of the area where chemicals are stored, mixed, or used.

Do not contaminate feed, feed containers, or water troughs. Carefully clean all contaminated planting equipment. Destroy all emptied containers so they cannot be used for any purpose. Post treated fields as recommended.

South Dakota Poison Control Centers

Sioux Falls: (Treatment and Information)
Poison Control Center
McKennan Hospital
800 East 21st Street
Sioux Falls, South Dakota 57101
Phone: 605-336-3894, G. F. Touhy, M.D.

Vermillion: (Information)
Poison Control Center
Dept. of Pharmacology
University of South Dakota
Vermillion, South Dakota 57069
Phone: 605-624-3432, J. N. Spencer, Ph.D.

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